

REMARKS

In the latest Office Action, claims 1-6 have been rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over Niu et al. U.S. Patent No. 6,783,702, which corresponds to previously cited U.S. Publication No. US 2003/0089890. While the Examiner indicated that the previously submitted declaration under 37 CFR 1.131 was sufficient to remove Niu et al. US 2003/0089890 publication as prior art, he has indicated that the declaration is ineffective to remove Niu 6,783,702. Specifically, the Examiner has indicated that he believes the reference can only be overcome in the context of an interference, asserting that there is no patentable distinction between the respective claims of the present invention and the claims in the '702 patent. Applicants disagree. Niu et al. '702 claim a polymer composite comprising 1) a mixture of at least two substances selected from polyvinylidene chloride, a copolymer of vinylidene fluoride and another monomer, and another polymer, and 2) carbon **nanotubes**. Applicants' claims are directed to a conductive polymeric nanocomposite material formed by providing vapor grown carbon **nanofibers**, combining the nanofibers with a solvent to form a solution mixture, adding a polymer to the solution mixture to form a substantially homogeneous solution mixture, and removing the solvent. Niu et al. does not teach or claim the use of **nanofibers**, and applicants do not teach or claim the use of nanotubes. Further, Niu et al. disclose and claim a mixture of polyvinylidene fluoride and copolymers of vinylidene fluoride and other polymers. Applicants do not disclose nor claim the use of polyvinylidene fluoride or vinylidene fluoride copolymers in a nanocomposite material. Applicants' claims and Niu's claims recite different subject matter and are directed to different patentable inventions.

MPEP §2306 provides that an interference may be declared between an application and a patent "if the application and patent are claiming the same patentable invention." MPEP §2306 states:

"Since the claims of a patent may not be altered (except by reissue or reexamination), the applicant must claim the same patentable invention as is claimed in one or more claims of a patent in order to provoke an interference with the patent. The fact that the patent may disclose subject matter claimed by the applicant is not a basis for interference if the patent does not claim that subject matter."

Here, applicants are not and cannot claim the same patentable invention as claimed in Niu et al. Accordingly, applicants submit that the previously filed declaration is sufficient to remove Niu et al. '702 as a prior art reference.

Claims 1-6 stand rejected under 35 U.S.C. 102(b) as anticipated by or in the alternative, under 35 U.S.C. 103(a) as obvious over Nahass et al., 5,643,502. The Examiner maintains that Nahass inherently meets all of the claimed limitations, asserting that Nahass teaches the application of shear to achieve a homogeneous dispersion of fibrils, and that the reference discloses resistivity and percolation values which overlap with the claimed values. However, applicants could find no percolation values disclosed in Nahass. With regard to conductivity, Nahass discloses a volume resistivity of  $1 \times 10^{11}$  ohm-cm, which is equivalent to a conductivity value of  $1 \times 10^{-11}$ . Such a value is several orders of magnitude less than the claimed range of  $10^{-6}$  to 20 S/cm. As previously pointed out, the claimed electronic conducting percolation threshold is indicative that the method of the present invention preserves the high aspect ratio of the carbon nanofibers. See the specification at page 3, fifth paragraph. As Nahass et al. is silent as to its electronic conducting percolation threshold, it is not seen how Nahass et al. anticipate the claims.

Further, as previously pointed out, applicants' low-temperature solution which is used to disperse the carbon nanofibers does not degrade the high aspect ratio of fibers in comparison with processes which use high shear mixing such as in the process taught by Nahass et al. Further, Nahass et al. do not teach or suggest the use of a solvent, which is used by applicants to dissolve the polymer and achieve the homogeneous dispersion. While the Examiner asserts that Nahass et al. achieve a homogeneous dispersion, referring to col. 3, lines 30-34, what Nahass et al. actually teach is that shear is applied to break down the aggregates to a size of less than 35 microns in diameter. Nowhere does Nahass state that it achieves a homogeneous dispersion.

In addition, applicants teach the use of carbon nanofibers, i.e., all of the fibers are nanometer sized, from about 60 to 200 nm in diameter. In contrast, Nahass et al. teach the use of carbon fibrils which are in the form of aggregates having a substantially larger diameter of 35,000 nm. As taught and claimed in the present invention, the solution mixture of the present invention which contains the nanofibers, solvent and polymer, is a substantially **homogeneous** mixture, which results in uniform dispersion of the nanofibers in the polymer matrix. This is not the case in Nahass et al., who require the use of large diameter aggregates in order to provide the desired toughness to the polymer resins. The composite product of Nahass et al. is clearly not identical to that of the present claims as asserted by the Examiner. Claims 1-6 are clearly patentable over Nahass et al.

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For all of the above reasons, applicants submit that claims 1-6 are patentable over the cited references and are in condition for allowance. Early notification of allowable subject matter is respectfully requested.

Respectfully submitted,

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